

1792/1310
(040)

March 15, 2001

Dear Reviewer:

The Bureau of Land Management (BLM), Rock Springs Field Office, has prepared an environmental assessment for a proposal by Wolverine Gas and Oil Corporation to drill three exploratory wells near a portion of the National Historic Trail System (Oregon/Mormon Pioneer/California/Pony Express) located in Sublette County, approximately 19 miles northeast of Farson, Wyoming. The document contains analysis of the final locations of the wells based on the outcome of the "viewshed" analysis. This letter is to advise you that the environmental assessment is available for review by downloading it from the internet at the following address:

http://www.wy.blm.gov/field_offices/rsfo/rs_home.html

Click on Wolverine Exploratory Drilling Proposal link in the Table (Meetings/Events/Special Notices). You will need Acrobat Reader to view the document and can be downloaded from the website, click on New Stuff. We have copies available at our office if you do not have access to the internet.

Comments are due April 15, 2001. Comments may be submitted to Rock Springs Field Office, 280 Highway 191 North, Rock Springs, Wyoming 82901 or by email to: rock_springs_wymail@blm.gov (please put Wolverine in subject line) No decision has been made with regard to this exploratory proposal. If you have any questions about Wolverine's exploratory drilling proposal, please contact George Schoenfeld at 307-352-0271. If you desire a paper copy of the environmental assessment, please call Teri Deakins at 307-352-0211.

Sincerely,

/s/Ted Murphy
Assistant Field Manger

ENVIRONMENTAL ASSESSMENT
Wolverine Exploratory Drilling Proposal in Close Proximity
of the National Historic Trail System
WY-040-EA-01-027

Introduction

Wolverine has applied to the Bureau of Land Management (BLM), Rock Springs Field Office (RSFO), for approval to drill 3 exploratory wells on their leases that are located close to National Historic Trails. These exploratory wells are located in Sublette County, roughly 19 miles northeast of Farson, Wyoming (Map 1).

Purpose and Need for the Proposed Action

The purpose of Wolverine's proposal is to exercise their rights under valid, existing leases, as issued by the BLM, to search for and test certain geologic formations for the presence of commercial quantities of hydrocarbons.

Conformance with Land Use Plans








In accordance with 43 CFR 1610.5, the proposed action has been reviewed and is in conformance with the Green River Resource Management Plan (RMP), approved August 8, 1997. Management objectives and actions for fluid mineral exploration and development can be found on page 12 and are incorporated here by reference. This action is also in conformance with the land use decisions pertaining to management objectives and actions for historic trail management and visual resources (Class IV). See pages 4 and 21 respectively. This analysis for exploratory drilling is tiered to and incorporates by reference the oil and gas analysis in the Draft and Final Environmental Impact Statements (EIS) for the RMP.

Relationship to Statutes, Regulations, or Other Plans

As part of the consultation process under Section 106 of the National Historic Preservation Act of 1966, as amended, the BLM is required to consult with the Wyoming State Historic Preservation Officer (SHPO), and others as necessary, regarding potential impacts of the proposed undertaking upon historic properties. The proposed action lies within the general area containing four members of the congressionally designated National Historic Trails (trail system) - Oregon/Mormon-Pioneer/California/Pony Express Trails.

Map 1

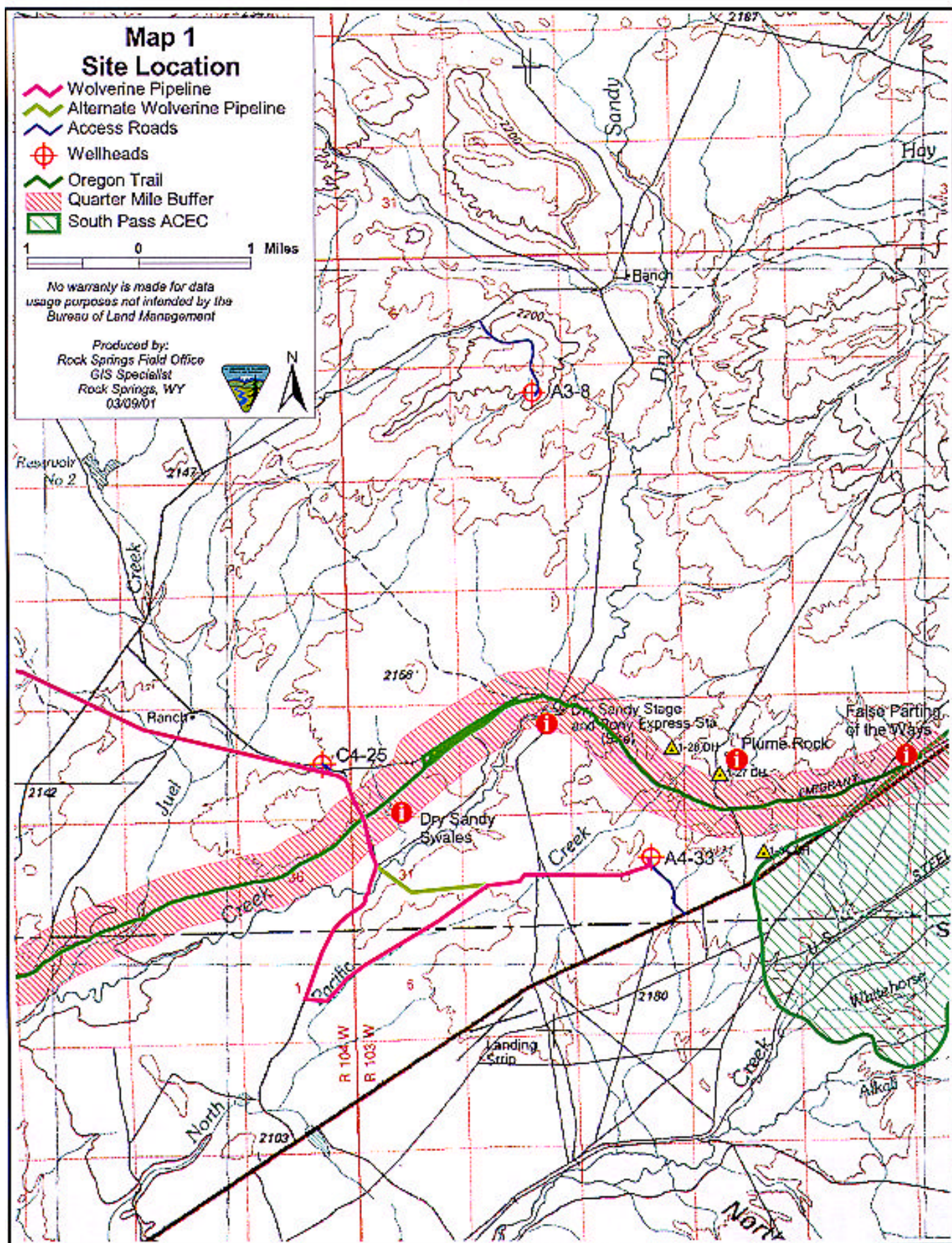
Site Location

-  Wolverine Pipeline
-  Alternate Wolverine Pipeline
-  Access Roads
-  Wellheads
-  Oregon Trail
-  Quarter Mile Buffer
-  South Pass ACEC

1 0 1 Miles

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Produced by:
Rock Springs Field Office
GIS Specialist
Rock Springs, WY
03/09/01



DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

Proposed Action

Wolverine proposes to drill 3 exploratory wells on their existing leases at the following locations:

Lease Number	Well Number	Location
WYW-147486	Pacific Creek A4-33	T.27N., R103W, Sec 33: SW1/4NE1/4,
WYW-141152	Pacific Creek A3-8	T.27N, R103W, Sec. 8: NW1/4NE1/4,
WYW-146499	Pacific Creek C4-25	T.27N, R104W, Sec. 25: NE1/4SE1/4

Access to the proposed locations would be from Highway 28 and existing BLM Road 4106. Approximately 1.8 miles of new access would be required as shown on Map 1. The Applications for Permit to Drill (APDs)/Plan of Operations provide details on drilling methods to be used (well depths are confidential), and are on file at the RSFO and are incorporated by reference. Typical drilling methods and standard operating procedures would be employed with one exception. The surface location of the A4-33 well was moved to better screen the well from view of those visiting the trail system and will be directionally drilled to reach the target zone. Drilling is expected to take approximately 90 days per well. Associated production equipment (ie, condensate tanks, dehydrator units, separators, etc.) would be required if any of the wells produce commercial quantities of hydrocarbons as well as gathering pipelines. Any necessary gathering pipelines would be placed within existing disturbance (i.e., placement in burrow ditches along existing or constructed roadways) or in such a manner as to be visually screened from view by visitors along the historic trail system. Due to concerns raised internally with regard to the historic trail system, and in addition to standard operating procedures, Wolverine has committed to the following measures:

- Based on field reviews and viewshed analysis, relocation of well sites (Map 1) to screen wells from view by any visitors using the historic trail system to the extent practicable while maintaining lease rights to explore for and produce any commercial quantities of hydrocarbons found.
- All production equipment would be no higher than 10 feet and would be placed in such a manner to screen to the extent possible from view by visitors along the trail system.
- All production equipment would be painted in a manner that makes such equipment less visible to any visitors on the trail system. Exception would be any equipment required to be painted certain colors for health or safety reasons.
- Maintain the existing bridge on BLM Road 4106 in same condition as currently found and assume responsibility for repair of any damage occurring due to use of the bridge for approved drilling or production operations.
- Any pipeline crossing the historic trail system would be placed within existing BLM

Road 4106 disturbance area.

- Wolverine would fund or conduct all required fieldwork, document research, and analysis necessary to complete the National Preservation Act Section 106 compliance process (36 CFR 800) or National Cultural Programmatic Agreement (NCPA) and Wyoming State Protocol (SWP) prior to any surface disturbing activity.
- Surveys for threatened, endangered, candidate, or proposed (T/E/C/P) or other species of concern would be conducted and completed prior to any surface disturbing activities. Should any T/E/C/P or other species of concern be found during these surveys, construction and drilling activity could be restricted between February 1 and July 31, in suitable sage grouse nesting habitat within 2 miles of a lek, between February 1 and July 31 within 0.5-mile to 1.0 miles (depending on species) of an active raptor nest, and between April 10 and July 10 to protect mountain plover nesting based on the results of on-the-ground surveys. If surface facilities are not constructed in CY 2001, additional spring surveys could be required.

Should the well not produce commercial quantities of hydrocarbons, the well would be plugged and reclaimed in accordance with the approved APD/Plan of Operations (incorporated by reference and on file in the RSFO), and any Conditions of Approval attached to the approved APD.

Should commercial quantities of natural gas be discovered, and Wolverine wishes to produce the well/s, a gathering/transportation pipeline would be required to move the gas to another existing pipeline system. Wolverine has not identified a potential pipeline route from the A3-8 well although any gathering pipeline would likely follow the access road as least part of the way. If a transportation pipeline is needed, Wolverine would be required to apply for a right-of-way (ROW) and submit a plan of development showing exact alignment, width, length, etc. This EA recognizes that a pipeline could be built but until BLM receives an application for a ROW or additional development is proposed based upon the outcome of exploratory drilling, details of the transportation pipeline and exact placement are unknown. Appropriate level of NEPA analysis would be conducted at that point. Two other exploratory wells could be proposed in the general area. Tentative locations are not within the vicinity of the historic trail system.

No Action Alternative

The no action alternative would deny Wolverine approval to drill the 3 wells as proposed. Selection of this alternative would not mean that exploratory drilling would not take place, only that it would be denied as proposed.

Alternatives Considered but Dropped from Detailed Analysis

In accordance with 40 CFR 1502.14(a), BLM is required to rigorously explore and evaluate

alternatives and to briefly document why such alternatives were dropped from analysis if upon such evaluation, the alternative is dropped from detailed study. A directional drilling alternative, one location to drill all 3 wells, was explored and evaluated. Since this is an exploratory drilling proposal directional drilling from one pad location to drill the 3 wells is unreasonable. Directional drilling techniques would be employed for the A4-33 well. If commercial quantities of hydrocarbons are discovered during the exploratory drilling stage, directional drilling may be a viable technique during the development stage.

AFFECTED ENVIRONMENT

The following critical elements, and other resource elements, of the human environment have been considered. Those items checked 'no' are not potentially affected or impacted by the proposed action or the alternative and will not be addressed further in this document.

Critical Element	Yes	No	Critical Element	Yes	No	Resource Elements	Yes	No
Air Quality	X		T/E Species		X	Forested Areas		X
ACEC		X	Wastes, Hazardous, Solid		X	Geology and Minerals	X	
Cultural/Historic	X		Water Quality		X	Land Resources		X
Farmland, Prime/Unique		X	Wetlands/Riparian Areas		X	Recreation/Visual	X	
Floodplains		X	Wild & Scenic Rivers		X	Vegetation/Soils	X	
Native American Religious Concerns		X	Wilderness		X	Wildlife	X	
Environmental Justice		X	Invasive Species		X	Livestock Grazing		X
						Socio/Economics		X

General Setting

The Draft and Final EIS associated with the RMP provides a detailed discussion of the general setting of the RSFO. The area involved is considered to be a semiarid, midcontinental desert typified by dry, windy conditions, limited rainfall, and long winters. Topography of the immediate area is relatively flat to gently rolling hills with topographic features such as knobs and rock formations.

The area is dissected by various types of roads including US Highway 28, upgraded BLM roads, numerous two-track trails, and range improvements (water impoundments). A radio tower lies to the northeast. The proposed wells are located within a coal withdrawal.

Affected Resources

Air Quality - The EIS associated with the RMP provides a discussion of air quality found in the

RSFO. Air quality is generally considered excellent. In recent years there has been concern with the potential impacts to air quality in Class I airsheds from oil/gas and other activities. The Moxa Arch and Fontenelle EIS/RODs, the Forest Service (6/26/96) identified a level of visibility impact concern for the Bridger Wilderness Area, a Class I airshed due to the cumulative increase in NO_x emissions from sources in the Rock Springs, Kemmerer, and Pinedale FOs. The level of concern was identified at 977 tons per year (tpy) above the levels existing on January 1, 1996. The Jonah II EIS/ROD (4/27/98) identified a level of visibility concern for the Bridger Wilderness Area from cumulative increase of NO_x emissions from that field at 158.6 tpy. The agencies involved agreed that if either level of emission was reached, BLM would notify Environmental Protection Agency (EPA), Forest Service (FS), and Wyoming Department of Environmental Quality-Air Quality Division (WDEQ-AQD) and in cooperation and consultation with these agencies, would initiate additional modeling or monitoring as required under NEPA.

Additional modeling analysis utilizing the WDEQ-AQD, FS, EPA, and BLM agreed upon CALMET/CALPUFF model has been completed. Results are now available through the Continental Divide/Wamsutter II FEIS (December 1999) and Pinedale Anticline DEIS (November 1999) air quality analyses. The cumulative impact analyses contained in these EIS's, which assumed the drilling of over 8,450 wells and associated compression, showed that the 1.0 deciview change threshold was not exceeded due to cumulative emissions. The 0.5 deciview change threshold, however, was exceeded. The FS reviewed the days of modeled cumulative impacts that were shown to be greater than a 0.5 deciview change and determined that the cumulative impacts from the Pinedale Anticline Project, combined with other recently proposed projects in southwest Wyoming, are significant in increasing visibility impairment in the Bridger Wilderness Area. However, based on the application of emissions reduction mitigation efforts by Ultra Petroleum at the Naughton Power Plant, and considering the timing, magnitude and duration of the remaining projected cumulative visibility impacts, the FS considers these impacts to be within an acceptable range (Pinedale Anticline DEIS page 5-19 & 20).

The latest WDEQ-AQD report (December 22, 2000) indicates that the FS NO_x "*level of concern*" is not in danger of being exceeded. As of October 31, 2000, there has been a net decrease in permitted potential NO_x emissions of 10,807 tpy as a result of a PacifiCorp operations modification permit at the Naughton Station. This equates to a net cumulative reduction in potential NO_x emissions of 9,839.16 tpy since the start of tracking on January 1, 1996. Therefore, the BLM, WDEQ-AQD and the FS have agreed that it is appropriate to reduce the frequency of reporting on the status of NO_x emission levels from a quarterly to an annual report. The next incremental emissions report will be provided in December 2001.

Cultural/Historic Resources - Cultural inventories for each well, road, and potential pipelines have not been completed due to weather. Employing the records of previously recorded sites and some of the initial intensive inventories conducted by the applicant, the following picture emerges.

South Pass Historic Landmark ACEC

The RMP established the South Pass Historic Landscape ACEC. This ACEC encompasses some 53, 870 acres and is located to the south (south side of Highway 28) of the proposed well locations. The proposed action does not affect nor impact the South Pass Historic Landmark ACEC. No further discussion is required.

Oregon/Mormon Pioneer/California/Pony Express National Historic Trails

The area contains some of the best remaining traces of these four National Historic Trails. These four trails were designated by Congress under the authority of the National Trails System Act. The trails share ruts within an expansive and sometimes complex corridor of parallel and intersecting ruts and swales. The main ruts have been mapped but the mapping of associated features is incomplete. Diaries from those who traveled these trails suggest there may be human interments in the stretch of trails near the proposed action. The number or locations of such graves are unknown. The corridor also contains the remains of hand-dug water wells, a Pony Express Station, a possible stage station, a major campsite, and natural features of importance to the emigrants. An example of the latter is the Plume Rock, one of the most sketched natural features in the body of trail diaries which has survived. The A4-33 is located over 1 mile away (and is screened from view) from Plume Rock, the C4-25 is 0.75 miles from (also screened from view of) the Dry Sandy Swales, and the A3-8 is located 2.75 miles from the closest point of the trail.

The RMP establishes protective withdrawals around the Dry Sandy Swales and Parting-of-the-Ways (located approximately 4 miles to the west of the C4-25 well) in order to protect some of the exceptional trail values there. Dry Sandy Swales (located approximately 0.75 miles east of the C4-25 well) is established as an exclusion area closed to surface disturbance. None of the proposed facilities affect or impact the protective withdrawals associated with these trail system features.

Other Historic Period or Prehistoric Period Cultural Resources

Although the general area (meaning the area from the Little Sandy River to the furthest east proposed well location) is comparatively unchanged since the 19th century, there are a variety of later 20th century intrusions. These include pastoral sites (a ranch, road system, a bridge, stock tanks, campsites), Highway 28, interpretive/commemorative markers/sites, seismic tracks, a stage road, a canal system, and abandoned oil and gas well pads. The area currently sees substantial use for grazing, historical tourism, and hunting.

Inventories for previously analyzed, but subsequently rejected, locations indicate that the area has a high potential for containing cultural resources. Inventories in the general area are returning

roughly one site found for every 5 to 10 acres of inventory. The sites encompass the last several thousand years, and for the most part, appear to be campsites and hunting/gathering sites.

Geology/Minerals - Geologic information directly related to the proposed wells is confidential. Therefore, the geology and minerals discussion can only focus on the geologic setting and available oil and gas information from nearby wells. Also, the reader is referred to the oil and gas related sections of the Jack Morrow Hills Coordinated Activity Plan Draft EIS (June 2000). The proposed wells lie within the northern part of the Green River Basin. Here, the Wasatch Formation (Tertiary) crops out. It consists of sheet like sandstone bodies, siltstones and mudstones derived from the eroded Wind River Range located to the north. The Wasatch Formation is underlain by approximately 25,000 feet of sedimentary rock,

which in turn lies on a hard basement rock (Figure 1, Generalized Stratigraphic Nomenclature Chart). The configuration of the basement rock forms the Green River Basin at depth. At the surface, structural features define the basin margins. These structural features include the Wind River Range to the north, the Rock Springs Uplift to the east, the Uinta Mountains to the south, and the Overthrust Belt to the west. The Green River Basin has been explored and developed for hydrocarbons for many years. A number of formations have proven production, but by far, the Cretaceous formations are the most productive.

In the vicinity of the proposed wells, operators have drilled through the upper Jurassic, Morrison Formation at a depth of 18,777 feet (Woods Petroleum Corporation, Well #1: SWNE, section 26, T.26N., R.103W.: Dry Hole). The upper Cretaceous formations, including portions of the Mesaverde Group and Lance Formation have also been tested (Rainbow Oil Company, Well #1: NENW, section 34, T.27N., R.103W.: Total depth of 13,500 feet, Rock Springs Formation, Mesaverde Group: Dry Hole and Barret Resources, Well #1, NESE, section 33, T.27N., R.103W.: Total depth of 12,900 feet, Ericson Formation, Mesaverde Group, Dry Hole). The closest producing well is the Coastal Chem, Inc. Well # 1, located to the southeast in the SWSE section 23, T.26N., R.102W. It produces from the lower Cretaceous, Muddy Sandstone, with a cumulative production (1992-2000) of 1,164,107 million cubic feet of gas.

Recreation/Visual Resources - Recreation in the area is mostly associated with visiting the historic trail system. Hunting occurs during the fall months. Records kept at the Farson Visitor Center over the last few years show a minimum of 18,000 to 20,000 visitor days per year. Some of these visitors use their vehicles to drive parts of the trail system. 'False Parting of the Ways' interpretive site is an important stop for organized tours since it sits adjacent to Highway 28. Documentary filming has also occurred in the area.

The visual resource management class of this area is Class IV. The objective of this class is to provide for management activities, which may require major modification of the existing character of the landscape. Contrasts may attract attention and be a dominant feature of the landscape in

terms of scale; however, the change, should repeat the basic elements (form, line, color, and texture) inherent in the characteristic landscape.

Vegetation/Soils - Because there is no standard soil survey for the project area, only inferences, derived from the Sandy Grazing EIS (1976), can be made for soil types. This information is, therefore, not site specific to the well locations or potential pipeline alignment and can only provide a general assessment of the affected environment.

Soils in this upland area are well drained and formed in alluvium and colluvium derived predominantly from sandstone with some influence from shales. Many of these soils have a sandy surface of fine sandy loam or sandy loam 4-6 inches thick overlying sandy clay loam and sandy loam to a depth of 40 inches or more. Depth to bedrock is generally greater than 20 inches, with depth generally increasing with distance from ridges and outcrop. Most of these soils are calcareous, with some having a high carbonate horizon up to 40 inches thick. Scattered throughout the area are soils with more sand or more clay.

Soils with a sandy surface are subject to wind erosion while soils with a high carbonate content are subject to accelerated water erosion when the vegetative cover is removed. These soils generally have 6 to 12 inches of topsoil available for reclamation salvage.

These soils support Loamy, Sandy, and Shallow Sandy range sites dominated by big sagebrush, with grasses that include thickspike wheatgrass, bluebunch wheatgrass, Canby bluegrass, needleandthread grass, and Indian ricegrass.

Wildlife

Big game - The general area in and around the proposed wells is used by elk, deer, antelope and occasionally moose. Antelope are common from early spring through late fall and are part of the Sublette Herd Unit. Population of this herd unit is approximately 44,000. The general migration route is from Farson north and north-eastward in spring, with some antelope summering along the Dry Sandy and North Pacific Creek. The development of water through artesian wells and stockwater impoundments has allowed antelope to inhabit this area, which has been historically too dry for summer use. As autumn arrives, cool temperatures drive antelope from higher elevations south and west through this area where they may linger into early November. No crucial winter range for antelope is affected by this action.

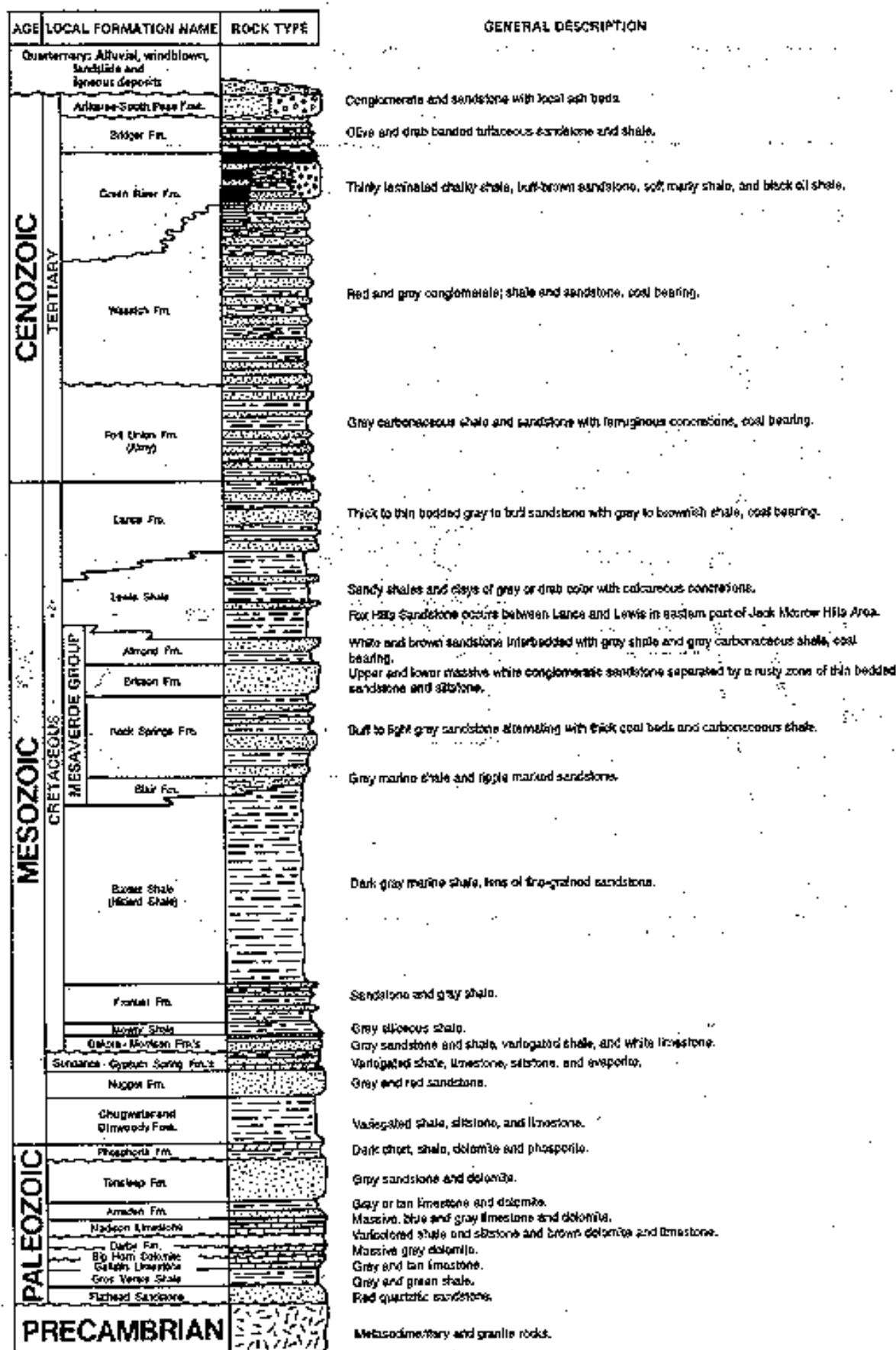


Figure 1
Generalized Stratigraphic Nomenclature Chart

Mule deer are yearlong residents of this area and are part of the Sublette Deer Herd Unit. Although there is an apparent lack of hiding cover, they manage to rear their young and subsist on the available shrubs and forbs. Deer winter on south facing slopes during severe winters, where thermal radiation reduces snow depths and exposes the tops of brush. The closest mule deer crucial winter range is located approximately 2 miles north, northwest of the A3-8 well location.

Elk often migrate through the area during late fall and winter. No crucial winter range for elk exists within the immediate area although some is located approximately 4 miles northeast of the A3-8 well site. Elk that summer in the Wind River Mountains usually split into two or more herds with some migrating to Mitchell Slough and onto Elk Mountain to the northwest of the area. Another group winters along Anderson Ridge and the Sweetwater River and one or more smaller groups migrate south into Monument Draw and sometimes south across Highway 28 into Jack Morrow Hills. It is this latter group of elk which may have their migration interrupted or become displaced if drilling activity is allowed during early winter and spring. As concluded in the Draft/Final EIS for the RMP, displacement of elk could be 2 miles or greater from oil and gas development and production activities in open range habitats.

Occasionally, moose may move down Monument Draw and the Dry Sandy into the area although they seldom remain and either cross the highway into Jack Morrow Hills or return toward the Prospect Mountains. The proposed wells are in a portion of the Sublette Moose Herd Unit where the harvest quota for 1999 was 12 moose. Moose habitat in the area would be classified as fair to poor since little cover or preferred vegetation exists.

Avian Species - The bird species of greatest interest for the Wolverine drilling activities is sage grouse. All of the proposed well locations fall within identified sage grouse nesting areas (Map 2). Considerable suitable nesting habitat exists in both the areas of the wells and potential pipeline routes. A strutting ground located in the southwest portion of Section 32, T27N, R103W had over 200 sage grouse in the late 1970s. Presently there are about 40 birds on this lek annually. It is unknown why there is a decline in sage grouse numbers in this area.

Several raptor nest sites are known in the general area from casual inventories conducted in the 1980s. A ferruginous hawk nest is located about 0.25 miles north of the Wolverine A3-8 (Map 2) but has been inactive for several years. Harriers (marsh hawks) are common to the area yearlong and are known to nest in the general area but none are known to be nesting within the immediate area.

A golden eagle nest may be located on a pinnacle between the C4-25 and A4-33 wells. This nest was last checked and found active in 1996. Great-horned owls, sharp-shinned hawks and kestrels are commonly observed in the area and short-eared owls winter here. A general raptor survey for the area is scheduled in the spring of 2001.

Some mountain plover habitat may exist in the immediate area of wells, access roads and pipeline routes. No mountain plover inventories have been conducted north of Highway 28 but are scheduled for the spring of 2001.

ENVIRONMENTAL CONSEQUENCES/IMPACTS

Proposed Action

Air Quality

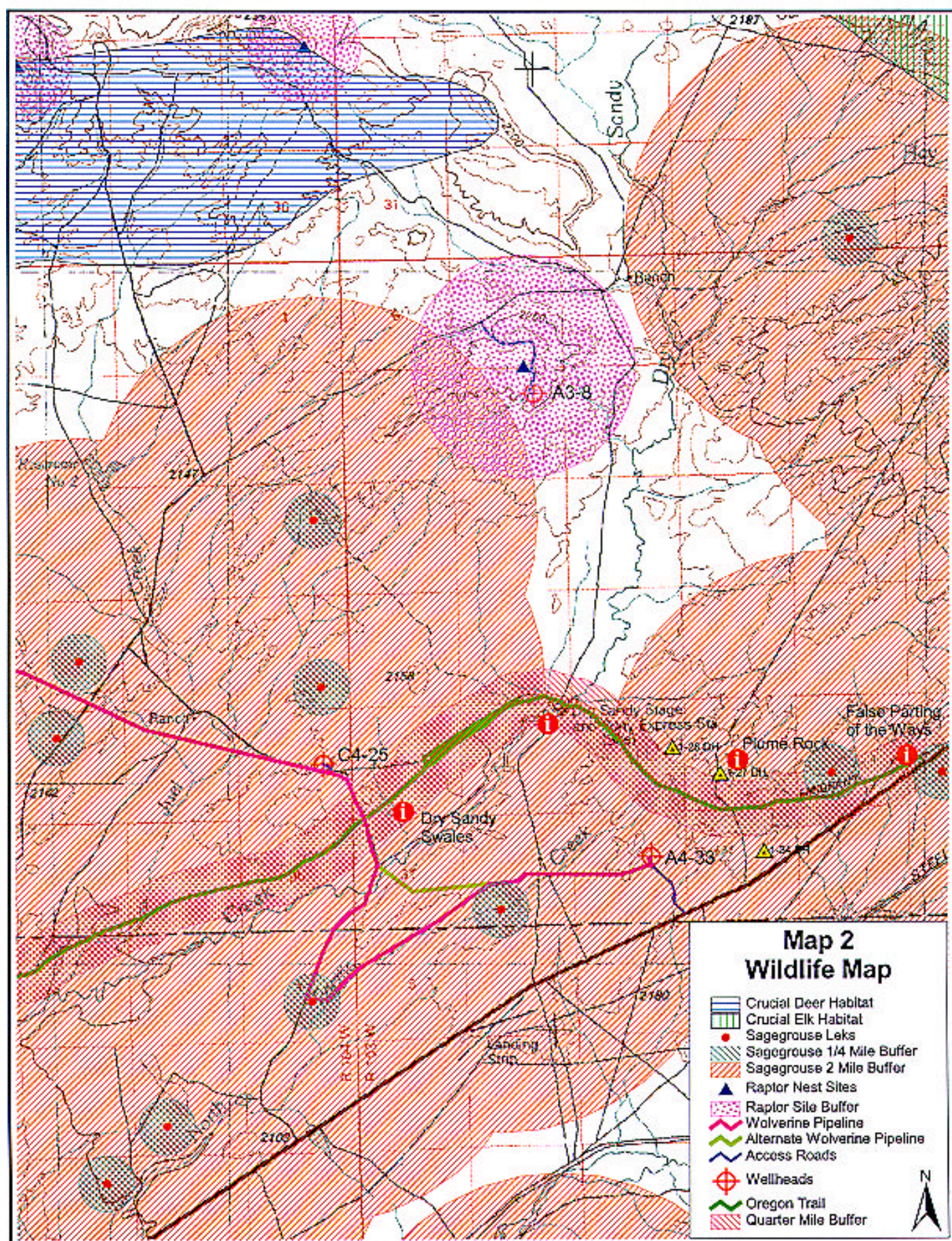
Direct and Indirect Impacts - NO_x emissions from this action should not adversely affect the Bridger Wilderness Class I airshed. Assuming the proposed wells are producers, the total NO_x emissions expected, with the well operating continuously for a full year (8,760 hours), would be 0.06 tpy for each well. Assuming the well also produces condensate stored on site in tanks, with best available control technology (BACT) applied - i.e., a flare control of tank VOC emissions, predicted NO_x emissions per well per year would be 0.3 tpy (Revised Air Quality Technical Support Document [Appendix G, page G-9], Jonah Field II Natural Gas Development Project FEIS, Sublette County, Wyoming, 1997). If these wells are deemed economical to produce, then the Operator will be required to file an application for an air quality permit from Wyoming Department of Environmental Quality for oil and gas production facilities under Section 21 of the Wyoming Air Quality Standards and Regulations.

Cumulative Impact Analysis - The current incremental tracking report on actual NO_x emissions for the BLM Rock Springs, Pinedale and Kemmerer Field Office areas covers the period of January 1, 1996 through October 31, 2000. The latest WDEQ-AQD emissions tracking report indicates that the U.S. Forest Service NO_x "*level of concern*" is not in danger of being exceeded. The report indicates that the net level of permitted potential NO_x emissions is **9,839.16** tpy below levels existing January 1, 1996. Given that the level of new NO_x emissions from this action are 1.08 tpy, the cumulative effect would remain within the acceptable range identified in the Pinedale Anticline Air Quality cumulative impact analysis and would not reach the FS' "level of concern."

Cultural Resources

National Historic Trails

Direct and Indirect Impacts - The Oregon/Mormon Pioneer/California/Pony Express National Historic Trails cross the area of analysis. In accordance with the RMP, no surface disturbance can occur within 0.25 miles or the visual horizon (whichever is closer) on either side of the trail system. No disturbance is proposed within the 0.5 mile protective area associated with the trail system; thus, there are no direct impacts to the trail system. Should a pipeline be required to produce the A4-33 well, it would cross the trail system in the existing disturbance associated with BLM Road 4106. The proposed wells do occur within one of the more visually natural



segments of the trail system although the area is not devoid of modern visual intrusions (roads, radio tower, range improvements).

Well pads have been located so that they are effectively screened from view by those using the trail system. The cut/slope associated with the A3-8 well location may be visible from the trail at a distance of 4 miles but it should not attract the attention of trail users due to the distance. The company has proposed to paint the facilities in an earth color to mimic the sagebrush color and additional measures such as using short tanks, partially burying the tanks, berming and feathering, and camouflage (i.e., seeding cuts, camouflaged netting) would be employed to further reduce potential visual impacts. Production tanks would be set into the ground to reduce “skyline” effect. All well pad, road, and pipeline locations will be surveyed for cultural resources prior to any surface disturbance and any trail-related cultural resources found would be appropriately mitigated. With implementation of these measures, indirect impacts to the trail system would be avoided or minimized.

During drilling, the drilling rig would result in short-term visual effects to those visiting the trail system but this is considered temporary. Upon completion and if the well produces commercial quantities of hydrocarbons, any remaining production equipment would be screened from the trail system. Increased heavy equipment traffic would occur during the drilling phase but is also considered temporary. All traffic crossing the trail system would use the existing upgraded and maintained road. BLM should monitor construction activities to assure proper placement of roads, well pads, and any associated production equipment and pipelines.

Cumulative Impacts - No cumulative impacts to the trail system and the associated 0.5 mile protective area is anticipated since RMP decisions would be adhered to regardless of the outcome of exploratory drilling.

Other Historic Period and Prehistoric Period Cultural Resources

Direct and Indirect Impacts- It is not known if there would be effects to these categories of cultural resources. Following the processes under Section 106 of the National Historic Preservation Act and its implementing regulations as well as agreements, it should be possible to eliminate direct and indirect adverse effects to such historic properties through avoidance and/or mitigative measures (i.e., data recovery or recordation) on a case-by-case basis.

Cumulative Impacts- Impacts to other historic or prehistoric cultural resources could occur should marketable gas be discovered and further exploratory drilling or field development is proposed. Any such potential impacts associated with field development would be analyzed at that time.

Geology/Minerals

Direct and Indirect Impacts - Drilling of the wells may result in the discovery of hydrocarbons. This in turn may lead to further exploration to better define the nature of hydrocarbon accumulation. If further exploratory information shows an economic accumulation of

hydrocarbons, then field development would likely follow. Recovery of hydrocarbons results in the depletion of an in place-resource. If no hydrocarbons are discovered, then additional exploratory wells may or may not be drilled, depending on the information obtained during drilling of the proposed wells.

Cumulative Impacts - Drilling these wells will contribute to the cumulative knowledge of the occurrence or absence of hydrocarbon accumulation within the Green River Basin. If productive, they will contribute to the cumulative hydrocarbon production from the Green River Basin, Wyoming, and the United States, while at the same time adding to the overall depletion of hydrocarbon resources within the same geographic provinces.

Recreation/Visual Resources

Direct and Indirect Impacts - Well locations are at least 0.5 mile away from either side of the trail system in conformance the RMP (0.25 miles either side of trails) and are screened by topography. Surface facilities would be painted in an earth color to repeat the color of sagebrush to help blend in more with the background color. Drill pads would be bermed and feathered to further reduce line effects. Production tanks would be set into the ground to reduce the skyline effect. Thus, potential direct and indirect impacts to visitors on the trail system would be avoided or minimized to the extent possible. Implementation of the proponent's committed measures to reduce visual impacts for those visiting the trail system is above and beyond that required under the Class IV visual management objectives and actions described in the RMP.

The proponent would only use BLM Road 4106, an existing disturbance, to cross the trail system to carry project-related traffic. The trail system would not be crossed at any other point. The location of new access roads would be aligned so they are not visible from the trail. BLM Road 4106 would also be the route of the pipeline across the trail system should the A4-33 well produce commercial quantities of hydrocarbons resulting in no further impacts to the trail system.

Cumulative Impacts - Impacts to recreationists using the area could occur should marketable gas be discovered and further exploratory drilling or field development proposed. Should further development be proposed, BLM would then initiate the appropriate level of NEPA compliance to analyze any potential impacts. No cumulative impact to the designated Class IV visual management area is expected.

Vegetation/Soils

Direct and Indirect Impacts - Soil stability and productivity would be impacted by construction activities. Topsoil salvaged on sandy sites would be subject to wind erosion until replaced during reclamation or stabilized by a vegetative cover. Uncontrolled runoff from the A3-8 could cause accelerated water erosion; however, standard operating procedures for erosion control would be employed as necessary.

Cumulative Impacts - Revegetation of grasses following reclamation generally takes 2 to 3 years in this area while sagebrush revegetation often takes 20 years or more. Vegetative productivity on about one acre per well would be disrupted for the life of the well. Soils types in this area should not present a problem to successful reclamation. Overgrazing by livestock was observed on a reclaimed well site close to A4-33. Livestock use prior to the establishment of a viable root system could have a long term negative impact on successful revegetation. Further impacts to vegetation and soils could occur should marketable gas be discovered and further exploratory drilling or field development proposed. Should further development be proposed, BLM would then initiate the appropriate level of NEPA compliance to analyze any potential impacts.

Wildlife

Big Game

Direct and Indirect Impacts - The drilling of 3 exploratory wells and potential construction of associated pipelines could have impacts on big game species depending upon the timing of activity, especially during migration times of late fall-early winter and early spring. There would be a short-term loss of forage and cover resulting in movement of big game away from construction/drilling activity. However, the area is open country and any direct or indirect impacts should be minimal. Limiting pipeline construction to existing disturbance, where possible, would prevent unnecessary removal of native forage.

Cumulative Impacts - Impacts to big game species could occur should marketable gas be discovered and further exploratory drilling or field development is proposed. Any such potential impacts associated with field development would be analyzed at that time.

Avian Species

Direct and Indirect Impacts - The greatest impact associated with the proposed project would be noise on sage grouse. This species requires that the audible portions of their display ritual be heard by other males and females in order for lek hierarchy to be established and for female courtship. Noise associated with the wells (compressors, dehy units, etc.) and potential pipeline construction may disrupt sage grouse breeding and long term production. The well pads, roads, and pipeline areas would be surveyed in early spring for sage grouse breeding or nesting activity and should nesting activity be occurring, construction and drilling would be delayed until nesting is complete, usually by July 31.

Storage tanks and on-site facilities often act as raptor perches, increasing depredation on sage grouse and other wildlife. Storage tanks are often used as nest sites for ravens, eagles, or ferruginous hawks and could lead to additional predation on small non-game animals and game birds, especially sage grouse. Use of low profile structures should mitigate these potential impacts if any of the wells produce commercial quantities of hydrocarbons. Surveys for T/E/C/P and other species of concern (e.g., sage grouse, raptors, mountain plover) would be conducted in

the spring of 2001. Should any such species be found, appropriate seasonal mitigation would be applied (e.g., February 1 - July 31 restrictions on activity to protect nesting raptors or nesting mountain plovers between April 10 - July 10).

Cumulative Impacts - Impacts to avian species could occur should marketable gas be discovered and further exploratory drilling or field development is proposed. Any such potential impacts associated with field development would be analyzed at that time.

Mitigation/monitoring Requirements - The measures identified below are identified to further reduce the potential impacts from the proposed action and are in addition to those measures committed to by the proponent as identified under the proposed action.

Construction activities would be monitored by BLM to assure the proper placement of roads, wellpads, associated production equipment, and pipelines.

An Archeologist should be on site during any pipeline construction crossing the historic trail system or in other places associated with this action should it be determined, after cultural surveys are completed, there are cultural resources within or near construction areas.

The exact pipeline route would be determined after an onsite investigation of potential routes in order to minimize potential impacts to visitors along the historic trail system.

BLM would monitor the success of the proponent's committed measures and could modify those measures should they prove to be ineffective.

Residual Impacts - Abandoned well pads and roads would be shaped to original contours and seeded with same native species found adjacent to the roads and well pads. Acceptable vegetation cover of 80% of the adjacent undisturbed area normally takes 2 or 3 years. The time frame to achieve shrub growth on reclaimed areas so they blend with undisturbed vegetation may take a minimum of 10 years.

No Action Alternative

Air Quality

Direct, Indirect, and Cumulative Impacts - Potential impacts to air quality would not occur under this alternative.

Cultural Resources

Direct, Indirect, and Cumulative Impacts - Potential impacts to cultural resources including the historic trail system and historic properties would not occur under this alternative. Current interpretations and use of the historic trail would be unaffected.

Recreation/Visual Resources

Direct, Indirect, and Cumulative Impacts - Potential impacts to recreation and visual resources would not occur under this alternative.

Geology/Minerals

Direct, Indirect, and Cumulative Impacts - By not drilling the proposed wells, depletion of the hydrocarbon resource, if any, would not occur. And, the nations demand for this resource would result in development elsewhere. As well, additional information on hydrocarbon accumulation in the Green River Basin would not be obtained and the collective knowledge base would not increase.

Vegetation/Soils

Direct, Indirect, and Cumulative Impacts - Potential impacts to vegetation and soils would not occur under this alternative.

Wildlife

Direct, Indirect, and Cumulative Impacts - Potential impacts to wildlife species would not occur under this alternative.

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